

Acids and Alkalis

- Q1 Place a tick in the box next to each of the following statements to indicate which are True and which are False.

Is it True or must it be False...

	True	False
All acids are dangerous	<input type="checkbox"/>	<input type="checkbox"/>
All alkalis are dangerous	<input type="checkbox"/>	<input type="checkbox"/>
Acids produce H^+ ions in solution	<input type="checkbox"/>	<input type="checkbox"/>
Alkalis produce OH^- ions in solution	<input type="checkbox"/>	<input type="checkbox"/>

Is it True, or by its very nature must it therefore be False...

	True	False
Acids have a pH above 7	<input type="checkbox"/>	<input type="checkbox"/>
Acids have a pH below 7	<input type="checkbox"/>	<input type="checkbox"/>
The pH scale goes from 0 to 14	<input type="checkbox"/>	<input type="checkbox"/>

- Q2 Give the names of three common bench acids and alkalis, and write out their formulae:

Name of Acid	Formula of Acid
(i)	
(ii)	
(iii)	

Name of Alkali	Formula of Alkali
(i)	
(ii)	
(iii)	

- Q3 What do we call a substance with a pH of 7?

- Q4 Name a substance that is usually pH 7.

- Q5 State which of the following is an acid and which is an alkali:

a) Hydrochloric acid

b) Sodium hydroxide

c) KOH

d) H_2SO_4

e) HNO_3

- Q6 What is an indicator?

- Q7 Why are indicators useful?

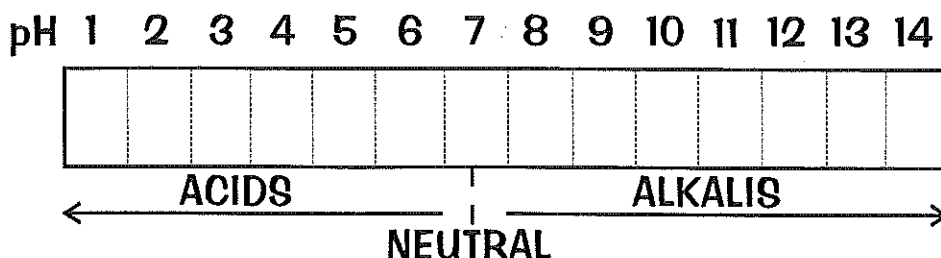
- Q8 What is a base? Name three bases.

- Q9 Complete the table by adding the correct colour of the indicator in acid or alkali:

Indicator	Colour in solution of:	
	Acid	Alkali
Universal Indicator		
Red Litmus		
Blue Litmus		
Phenolphthalein		
Methyl Orange		
Methyl Red		

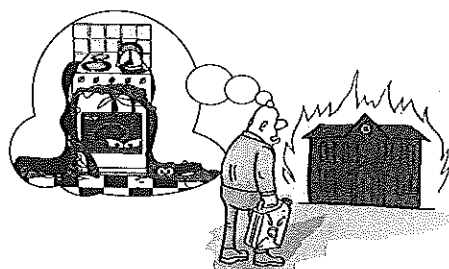
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Q10 Colour in the pH chart with the correct colours for Universal indicator solution:



Q11 What values of pH would you expect for?

- | | |
|-----------------------------------|-----------------------|
| i) Citric acid | iv) Oven cleaner |
| ii) Sodium chloride (common salt) | v) Sodium hydroxide |
| iii) Lime (calcium hydroxide) | vi) Hydrochloric acid |



Q12 Fill in the blanks with the correct words:

Universal indicator turns a _____ colour in strong acids, _____ in neutral solutions and _____ in strong alkalis. Another indicator which changes colour in acid and alkali is _____. A solution which is not acid or alkali is said to be _____, and has a pH of _____. Lemons and oranges contain _____ acid. Fizzy drinks contain _____ acid. Taking milk of magnesia tablets may help indigestion because they contain a weak _____. Strong oven cleaners contain a strong alkali called _____. Car batteries contain _____ acid.

Q13 Explain how you could measure the pH of a colourless solution.

Q14 Explain how you could measure the pH of a brightly-coloured solution.

Q15 The labels have fallen off test tubes of vinegar, water, sulphuric acid, and oven cleaner. The table to the right shows the colours observed when pH paper was added to each tube.

Fill in the missing pH values and identify which substance is in which tube.

Tube	Colour	pH
1	Red	
2	Orange	
3	Green	
4	Blue	

Top Tips:

This stuff's not so bad, I'd say — just loads of H^+ and OH^- ions floating about. But make sure you can define an acid and alkali in terms of these — and write an equation for their neutralisation. If you can do that and know your pH scale, you're pretty much there...